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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,965	06/21/2006	Young-Joo Yee	0630-2784PUS1	1536

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EXAMINER

HARRINGTON, ALICIA M

ART UNIT	PAPER NUMBER
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2873

NOTIFICATION DATE	DELIVERY MODE
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03/24/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/583,965	Applicant(s) YEE ET AL.	
	Examiner Alicia M. Harrington	Art Unit 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-25,27-33 and 35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-24 is/are allowed.
- 6) ☒ Claim(s) 1,4-11,25 and 29-33 is/are rejected.
- 7) ☒ Claim(s) 3,27 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1007</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

**The Examiner has considered the information disclosure statement filed on
10/22/07.**

Response to Arguments

Applicant's arguments, see pages 9-10, filed 12/13/07, with respect to the rejection(s) of claim(s) 1,25,33 under He, Kwon and Fukuda (office action 8/13/07) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Sales (US 2004/0130790).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over He et al (Applied Optics Vol. 42, No 36). in view of Sales (US 2004/0130790)

Regarding claims 1 see figure 1 and section 2, 3 of He. He discloses an elliptical version of the micro lens. The radius of curvatures is different. However, He fails to specifically disclose the conic coefficients are different.

Sales teaches that producing micro lens array having randomized conic coefficients and radius of curvature are known in the art (see sections 63, 74, 69). Sales teaches the lenses can be designed over the entire two dimensional arrays with each micro lens having different values. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have two different curvature and conic value in orthogonal directions, since it would produce a modified version of the ellipse and such lenses can used to provide arrays that have a desired effect on the light transmission through the array (beam shaping).

Regarding claim 4, He fails to specifically disclose 100 percent of packing fraction. Sales teaches the micro lens covering the substrate in a well packed arrangement. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include this feature, since close pack structure is well known in the art and increase fill factor increase the transmittance efficiency of the light.

Regarding claims 5-7, 10, He fails to specifically disclose the claimed shapes. Sales figure 11 discloses many footprint designs. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include these features, since they are well known base structures that provide a closed packed micro lens structure; thus increasing the fill factor which increases the transmittance efficiency of the light.

Regarding claim 8, He and Sales fail to specifically disclose a resin. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include this feature, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 9, see section 2.

Regarding claim 11, see section 3.

Claims 25,30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kwon et al (US 2004/0263967) in view of Sales (US 2004/0130790).

Regarding claim 25, Kwon teaches an aspherical lens (320,321-see figures 3 and 7; section 47); a black matrix (300,330); a Fresnel lens (100)-sections 24, 35-49. However, Kwon discloses aspherical micro lens design but fails to specifically disclose the conic coefficients are different.

Sales teaches that producing micro lens array having randomized conic coefficients and radius of curvatures are known in the art (see sections 63, 74, 69). Sales teaches the lenses can be designed over the entire two dimensional arrays with each micro lens having different values. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have two different curvature and conic value in orthogonal directions, since it would produce a modified version of the ellipse and such lenses can be used to provide arrays that have a desired effect on the light transmission through the array (beam shaping).

Regarding claim 29, see sections 40-47.

Claim 30 is a product by process claim. The method of manufacturing the black matrix of the lens array doesn't determine patentability in a product claim. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a method of manufacturing a black matrix, since it provides a black matrix with apertures and for aspherical micro lens and thus is a functional equivalent.

Regarding claim 31, see section 52.

Regarding claim 32, see section 50-52.

Claims 33, 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda (US 2004/0125048) in view of Sales (US 2004/0130790).

Regarding claims 33, Fukuda discloses a display device with an image processor and aspherical lenses (sections 9-10, 28). However, Fukuda discloses aspherical micro lens design but fails to specifically disclose the conic coefficients are different.

Sales teaches that producing micro lens array having randomized conic coefficients and radius of curvature are known in the art (see sections 63, 74, 69). Sales teach the lenses can be designed with the entire two dimensional arrays with each micro lens having different values. Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have two different curvature and conic value in orthogonal directions, since it would produce a modified version of the ellipse and such lenses can used to provide arrays that have a desired effect on the light transmission through the array (beam shaping).

Regarding claim 35, Fukuda fails to specifically disclose type of the display device pixels/imagers. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a CCD or CMOS imager, since the technology is well know to imaging devices and each has it benefits, such as low cost and ease of integration with other devices.

Allowable Subject Matter

Claims 12-24 are allowed.

Claims 3, 27, 28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance: Prior art fails to fairly suggest a method for fabricating aspherical micro lens arrays comprising a third step of fabricating aspherical micro lens arrays having different curvature radiuses and conic coefficients, respectively, along two orthogonal axes on one surface of the micro lens arrays by providing and elongated force to the elastically-deformable spherical micro lens arrays; and a fourth step of fabricating a second mold having aspherical groove arrays, namely, a reversed phase of the aspherical micro lens arrays on one surface thereof; and reproducing the aspherical micro lens array using the second mold.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M. Harrington whose telephone number is 571 272 2330. The examiner can normally be reached on Monday - Friday 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Mack can be reached on 571 272 2333. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Alicia M Harrington/
Primary Examiner
Art Unit 2873

AMH